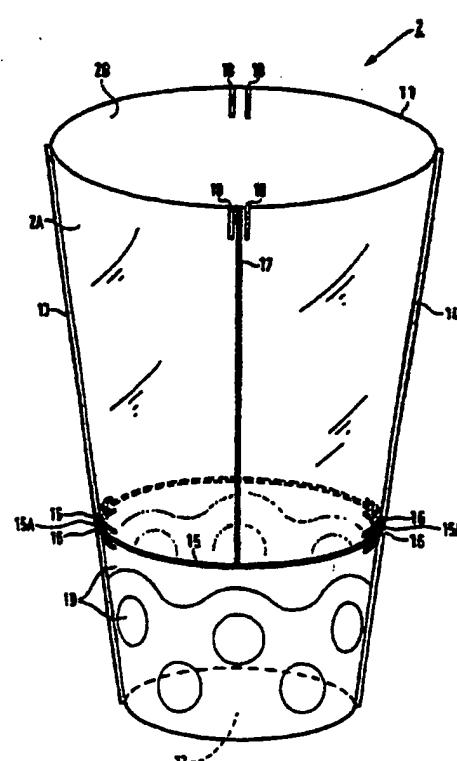


PCT

WORLD INTELLECTUAL PROPERTY ORGANIZATION  
International Bureau



INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification 6 : <b>B65D 85/50, 85/52</b>		A1	(11) International Publication Number: <b>WO 97/12819</b> (43) International Publication Date: <b>10 April 1997 (10.04.97)</b>
<p>(21) International Application Number: <b>PCT/NL96/00380</b></p> <p>(22) International Filing Date: <b>2 October 1996 (02.10.96)</b></p> <p>(30) Priority Data: 1001326 2 October 1995 (02.10.95) NL</p> <p>(71) Applicant (for all designated States except US): <b>KLERK'S PLASTIC INDUSTRIE B.V. [NL/NL]; Delfweg 52, NL-2211 VN Noordwijkerhout (NL).</b></p> <p>(72) Inventor; and (75) Inventor/Applicant (for US only): <b>SCHALKE, Wilhelmus, Bernardus, Gerardus [NL/NL]; Anne Frankstraat 26, NL-2162 JP Lisse (NL).</b></p> <p>(76) Agent: <b>VAN WEELE, Paul, Johannes, Fritz; Octrooibureau Los en Stigter B.V., Weteringschans 96, NL-1017 XS Amsterdam (NL).</b></p>		<p>(81) Designated States: <b>AU, CA, MX, US, European patent (AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE).</b></p> <p>Published With international search report. Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.</p>	
<p>(54) Title: <b>PACKAGING FOR HORTICULTURAL PRODUCTS</b></p> <p>(57) Abstract</p> <p>A packaging (1, 2) comprises a sleeve (1, 2) made from packaging film, which sleeve (1, 2) is in any case open at the top, into which sleeve (1, 2) a horticultural product such as flowers, plants and the like, may be put from the top side, for the protection of the flowers and/or leaves. In order to further avoid damage of the flowers and/or leaves of the horticultural product, the sleeve (1, 2) is provided with a tear strip (8, 9, 15) attached to the packaging film, allowing the packaging (1, 2) to be removed entirely or, if desired, partially, substantially without any damage to the packaged horticultural product.</p> 			

**FOR THE PURPOSES OF INFORMATION ONLY**

Codes used to identify States party to the PCT on the front pages of pamphlets publishing international applications under the PCT.

AM	Armenia	GB	United Kingdom	MW	Malawi
AT	Austria	GE	Georgia	MX	Mexico
AU	Australia	GN	Guinea	NE	Niger
BB	Barbados	GR	Greece	NL	Netherlands
BE	Belgium	HU	Hungary	NO	Norway
BP	Burkina Faso	IE	Ireland	NZ	New Zealand
BG	Bulgaria	IT	Italy	PL	Poland
BJ	Benin	JP	Japan	PT	Portugal
BR	Brazil	KE	Kenya	RO	Romania
BV	Belarus	KG	Kyrgyzstan	RU	Russian Federation
CA	Canada	KP	Democratic People's Republic of Korea	SD	Sudan
CF	Central African Republic	KR	Republic of Korea	SE	Sweden
CG	Congo	KZ	Kazakhstan	SG	Singapore
CH	Switzerland	LJ	Liechtenstein	SI	Slovenia
CI	Côte d'Ivoire	LK	Sri Lanka	SK	Slovakia
CM	Cameroun	LR	Liberia	SN	Senegal
CN	China	LT	Lithuania	SZ	Swaziland
CS	Czechoslovakia	LU	Luxembourg	TD	Chad
CZ	Czech Republic	LV	Latvia	TG	Togo
DE	Germany	MC	Monaco	TJ	Tajikistan
DK	Denmark	MD	Republic of Moldova	TT	Trinidad and Tobago
EZ	Estonia	MG	Madagascar	UA	Ukraine
ES	Spain	ML	Mali	UG	Uganda
FI	Finland	MN	Mongolia	US	United States of America
FR	France	MR	Mauritania	UZ	Uzbekistan
GA	Gabon			VN	Viet Nam

## Packaging for horticultural products

The present invention relates to packaging for a horticultural product such as flowers, plants and the like, comprising a sleeve which is made from packaging film and is in any case open at the top side, into which 5 sleeve the plant is placed from the top side.

Packaging of the above-mentioned type is used daily on a large scale in shops selling flowers and plants directly to the consumer as well as by growers and wholesalers and auctioneers. It is of the utmost 10 importance for growers and for wholesalers and auctioneers that flowers and plants are protected against damage such as damage incurred during transport. Often sleeves made from plastic foil, usually polypropylene, are used for this purpose.

15 A suitable sleeve, as well as a suitable method for the manufacture of such a sleeve is described in the European patent specification 0 369 549 B1, also by applicants. The sleeves described in this patent specification are intended for flowers and are shaped more 20 or less conically, having a wide top side and a narrower bottom side, in order to more or less have the sleeve follow the shape of a bunch of flowers or a plant. When making the sleeves one starts from two layers of plastic material which are placed on top of each other as flat 25 strips. The strips of plastic material thus placed on top of each other are cut cross-ways into separate sleeves, the two separate parts being joined along the edges by means of heat treatment forming a weld. The weld may be formed by, for instance, using a lancing tool.

30 Although the sleeves used have indeed proven to offer good protection against transport damage, it has on the other hand been shown, that the packaged plants and flowers may easily be damaged during removal from the packaging. Moreover, plants such as bromelia, kalanchoe 35 and St. Paulia may incur leaf damage, or the removal of leaves may result in the plant dying. Other plants and cut flowers depreciate in commercial value if damaged. All

this results in losses due to the fact that damaged plants and flowers are no longer suitable for sale. It is even so that markets located at a considerable distance from the grower cannot be adequately worked due to the fact that 5 the supply of undamaged plants or flowers to the sales outlet cannot be guaranteed.

The invention intends to provide a sleeve of the above type which is better suited to prevent damage to cut flowers and/or plants while in addition offering other 10 advantages and is characterized in that the sleeve is provided with a tear strip to allow at least partial removal of the sleeve, substantially without damage to the plant wrapped in the sleeve.

The tear strip is provided during production of the 15 sleeves in accordance with a procedure which is known per se. Through the provision of the tear strip damage during unwrapping, even fast unwrapping of large lots of cut flowers and/or plants, can be limited significantly, while moreover, the unwrapping operation can proceed more 20 quickly. Tearing open the sleeve with the aid of the tear strip facilitates fast and easy unwrapping by a very simple operation without requiring awkward manipulation of the packaged goods.

With packaging where the sleeve is also open at the 25 bottom, as is in particular the case with sleeves intended for cut flowers, the sleeve comprises, in addition to the top edge, also a bottom edge and it is of interest to use an embodiment of the invention, which is characterized in that the tear strip extends from the top edge of the 30 sleeve to the bottom edge. When using a sleeve according to this embodiment and after completely pulling loose the tear strip, only a sheet of packaging film remains, leaving the horticultural product completely free.

With another packaging wherein the bottom of the 35 sleeve opposite the top side is substantially closed, for instance for packaging pot plants, an embodiment of the invention is of interest which is characterized in that at some distance from the bottom a circumferential tear strip is provided. With this embodiment part of the packaging

remains in place after tearing lose the tear strip around the pot. This is of advantage, particularly in the case of pot plants which are placed on a shop shelf by the retail trade, for instance the supermarket. The base of the pot 5 stays covered by a remaining part of the packaging film. The plant itself is stripped of the sleeve, allowing a better presentation of the plant. The pot itself which is often dirtied with soil, stands on the bottom of the packaging. Any water present in the pot will stay in the 10 remaining part of the packaging so that there is less soiling of the shop or supermarket.

Especially with larger packagings of cut flowers and/or plants an embodiment of the invention may be of interest which is characterized in that the sleeve is 15 provided with several tear strips distributed over the sleeve. This allows faster removal of the packaging, if so desired, in separate parts, with the additional advantage that the packaging containing the horticultural product is subjected to less manipulation when finding a tear strip, 20 even if it is not necessary to remove the packaging in separate parts.

For easy and fast pulling loose of the tear strip an embodiment of the invention is of interest which is characterized in that the packaging film of the sleeve is 25 provided with slits at either side of an extremity of the tear strip. The presence of the slits at either side of the tear strip facilitates the extremity of the tear strip to be taken hold of so that this measure also contributes to the fast and easy removal of the packaging while the 30 horticultural product is to a large extent spared. The slits at either side of the tear strip are without problems easily and quickly provided during production without detrimental effects on the productivity of the production installation.

35 A sleeve having both an open top and an open bottom may, according to a further embodiment of the invention, be provided with said slits in the sleeve both at the top edge and at the bottom edge, so that when unwrapping, the

packaging may be pulled loose from the bottom to the top or from the top to the bottom as desired.

In packagings of the type mentioned previously, wherein the sleeve has opposite its top a substantially closed bottom and wherein a circumferential tear strip is provided at a distance from the bottom, it is of advantage to apply an embodiment of the invention which is characterized in that there are sealing welds at either side of the sleeve, that the extremity of the circumferential tear strip is located at a sealing weld and that the slits pass through the sealing weld. In this way taking hold of a tear strip for the removal of a packaging having a circumferential tear strip is also facilitated by the provision of slits.

This embodiment may advantageously have the further characteristic that passing through the other sealing weld the tear strip is also provided with slits on both sides. In this way the presence of sealing welds will form no hindrance to the quick and easy removal of the packaging.

With sleeves according to the last mentioned embodiment the upper part of the sleeve may, for instance, be pulled downward, that is to say downward along the pot.

The removal of the upper part of the sleeve may, however, be effectuated even more easily by applying a following embodiment which is characterized in that there is also a tear strip provided extending from the top edge of the sleeve to said circumferential tear strip. With this last embodiment it is also possible, if desired, to apply several tear strips extending from the top edge of the sleeve to the circumferential tear strip. This embodiment could be of interest when packaging large pot plants that have fragile flowers and/or leaves.

Preferably another embodiment may be applied which is characterized in that the part of the sleeve between the bottom and the circumferential tear strip has about the height of a plant pot. In this way optimal shop presentation of the plant is achieved, especially if the sleeve - which entirely covers the plant - is provided with suitable print.

It has been shown that the various embodiments of the invention may advantageously make use of the characteristic that the tear strip is 0.5 to 5 mm wide.

The invention will now be elucidated by referring 5 to the drawing showing a few non-limitative embodiments of the invention, wherein:

Fig. 1 is a view of the sleeve according to the invention for the use of cut flowers, which is open at the top and open at the bottom and

10 Fig. 2 is a sleeve according to the invention for the use of pot plants, which is open at the top and closed ✓ at the bottom.

15 The packagings according to the drawing are intended for packaging horticultural products such as flowers, plants and the like and all comprise a sleeve which is at least open at the top, for the insertion at the top of the horticultural product, which sleeve is made from packaging foil, for instance plastic foil such as polypropylene.

20 The sleeve 1 according to Fig. 1 has an open top and an open bottom and thus a top edge 2 and a bottom edge 3. The top edge 2 is scalloped for a more decorative presentation. The outer surface 4 of the sleeve is provided with decorative print 5. The sleeve consists of 25 originally flat pieces of packaging film 1A and 1B of which the edges are joined together locally by sealing welds 6 and 7. The sleeve may, for instance be used for packaging cut flowers which are inserted into the envelop through the open top, while the stems of the cut flowers 30 will normally protrude through the sleeve's open bottom.

The sleeve is provided with two tear strips 8 and 9. Each of these extends from the sleeve's top edge 2 to the bottom edge 3. The tear strips consist of a strip of suitable plastic being between 0.5 and 5 mm wide, which 35 are suitably attached, for instance by firm adhesion over the entire length of the sleeve. As the sleeve is made from flat plastic foil parts 1A and 1B, the strips can easily be attached to the originally flat sleeve during its manufacture. Due to the fact that the plastic foil of

the sleeve is provided with slits at either side of the top extremity 8A of the tear strip 8 the strip can be taken hold of at the edge in order to facilitate the removal of the packaging. Similarly, slits are also 5 provided at the extremity 8B of the strip 8 at the bottom edge. The same goes for the tear strip 9. The embodiment in Fig. 1 shows the strips 8 and 9 above each other when the sleeve lies flat, so that the slits 10 at the top edge and the slits 10 at the bottom edge in the two parts 1A 10 and 1B of the sleeve can be provided in one operation. This manner of providing slits in both parts 1A and 1B of the sleeve may also be applied when only one single tear strip 8 or 9 is present, as this facilitates making the slits. Apart from two tear strips 8 and 9 there could also 15 be more tear strips distributed over the sleeve in a different way. Also, the tear strips need not extend straight from top to bottom from the top edge 2 to the bottom edge 3, but could, in principle, also run obliquely.

20 Fig. 2 shows a packaging 2 for pot plants. Again the top is open, exhibiting a top edge 11. Opposite to the open top we find at the bottom of the sleeve a bottom 12. This sleeve, too, comprises two flat pieces of packaging film 2A and 2B respectively which are joined together at 25 either side by sealing welds 13 and 14. The bottom part of the sleeve has roughly the dimensions of a pot of a pot plant to be packaged and is provided with appropriate print 15 for the purpose of somewhat hiding the plastic pot used for transport. In the embodiment shown the top 30 part of the packaging is transparent in order to optimally exhibit the contents. The tear strip 15 is positioned at some distance from the bottom 12. With the aid of the tear strip the pot-shaped bottom part of the packaging can be separated from the top part of the packaging. This top 35 part may, for instance, be removed downward, leaving the plant entirely free while the pot in the bottom part remains in the packaging. The sealing welds 13 and 14 could impede the pulling loose of the tear strip. To avoid this, slits 16 are provided on both sides of the tear

strip's extremity 15A, which slits pass through the sealing weld 13. As the other sealing weld 14 could also impede the complete pulling loose of the tear strip, slits 16 are also provided at this sealing weld on both sides of 5 the tear strip 15. These slits may also easily be provided while the sleeve is still flat. The circumferential tear strip 15 could, in principle, also consist of two separate tear strips. When manufacturing the sleeve, which is still flat, it is easier to provide the two separate tear strips 10 than to provide the continuous circumferential strip.

For the easy removal of the top part of the packaging as shown in Fig. 2, a further tear strip 17 is provided, extending from the sleeve's top edge 11 to the circumferential tear strip 15. The tear strip 17 provided 15 over the outside of the sleeve may, for instance, run close to the tear strip 15, so that when removing the top part of the sleeve, only a small piece of packaging film remains to be torn by hand. This need not be a problem in practice. Similarly, as with the tear strips 8 and 9, the 20 top extremity of the tear strip 17 is at either side in the top edge 11 provided with slits 18. There are also slits 18 at the opposite side of the top edge 11, although at this side no tear strip is provided. The slits 18 at the top edge 11 opposite to the tear strip 17 are, however, 25 no problem, they occur automatically when the slits are made near the tear strip 17, as for simplicity's sake both plastics films 2A and 2B are cut simultaneously during manufacture.

Application of both a circumferential tear strip 15 30 and a vertical tear strip 17 allows, with pot plants, the quick and easy removal of the upper part of the packaging 2, and the bottom part, having roughly the height of the pot, remains around the pot while in the shop or supermarket. Of course, with this embodiment of the 35 invention it is also possible, if desired, to provide even more tear strips, which could be advantageous, especially with larger packagings.

Although the invention is demonstrated by only two embodiments, the invention is by no means limited to

these. On the contrary, the invention encompasses all embodiments within the scope of the accompanying claims. The sleeves may be made from any suitable packaging film, such as for instance cellophane or any other suitable 5 material such as plastic material, for instance polypropylene. The sleeves may or may not be transparent and may or may not be provided with print and, if desired, may have a different shape than the essentially conical shape shown. The tear strips may run in different 10 directions and may be used in a variety of combinations. The principal idea of the invention is the provision of a sleeve made from packaging film for packaging cut flowers, pot plants or other horticultural products such as shrubs, while the packaging can be removed quickly and efficiently 15 with the aid of tear strips without damaging the leaves or flowers of the packaged horticultural product. Embodiments wherein only part of the packaging consists of a sleeve made from packaging film, are also conceivable.

CLAIMS

1. Packaging (1; 2) for a horticultural product such as flowers, plants and the like, comprising a sleeve which is made from packaging film and is in any case open at the top side, into which sleeve the plant is put from the top side, characterized in that the sleeve (1; 2) is provided with a tear strip (8; 9; 15) to allow at least partial removal of the sleeve, substantially without damage to the plant wrapped in the sleeve.  
5
2. Packaging (1) in accordance with claim 1, wherein the sleeve (1) is also open at the bottom having a bottom edge (3), characterized in that the tear strip (8, 9) extends from the top edge (2) of the sleeve to the bottom edge (3).  
10
3. Packaging (2) in accordance with claim 1, wherein opposite to the top edge the sleeve (2) has a substantially closed bottom (12), characterized in that at some distance from the bottom (12) a circumferential tear strip (15) is provided.  
15
4. Packaging (1; 2) in accordance with any of the preceding claims, characterized in that the sleeve is provided with several tear strips (8; 9; 15) distributed over the sleeve.  
20
5. Packaging (1; 2) in accordance with any of the preceding claims, characterized in that the packaging film of the sleeve is provided with slits (10) at either side of an extremity of the tear strip (8; 9; 15).  
25
6. Packaging (1) in accordance with claims 2 and 5, characterized in that said slits (10) are provided both at the top edge (2) and at the bottom edge (3) of the sleeve.  
30
7. Packaging (2) in accordance with claims 3 and 5, characterized in that there are sealing welds (13, 14) at either side of the sleeve, that the extremity of the circumferential tear strip (15) is located at a sealing weld (B) and that the slits (16) pass through the sealing weld (13).  
35

8. Packaging in accordance with claim 7, characterized in that passing through the other sealing weld (14) there are also slits (16) provided on both sides of the tear strip (15).

5 9. Packaging in accordance with claim 3, characterized in that there is also a tear strip provided extending from the top edge of the sleeve to said circumferential tear strip.

10 10. Packaging in accordance with claim 3, characterized in that the part of the sleeve between the bottom and the circumferential tear strip has about the height of a plant pot.

11. Packaging in accordance with any of the preceding claims, characterized in that the tear strip is 15 about 0.5 to 5 mm wide.

1/2

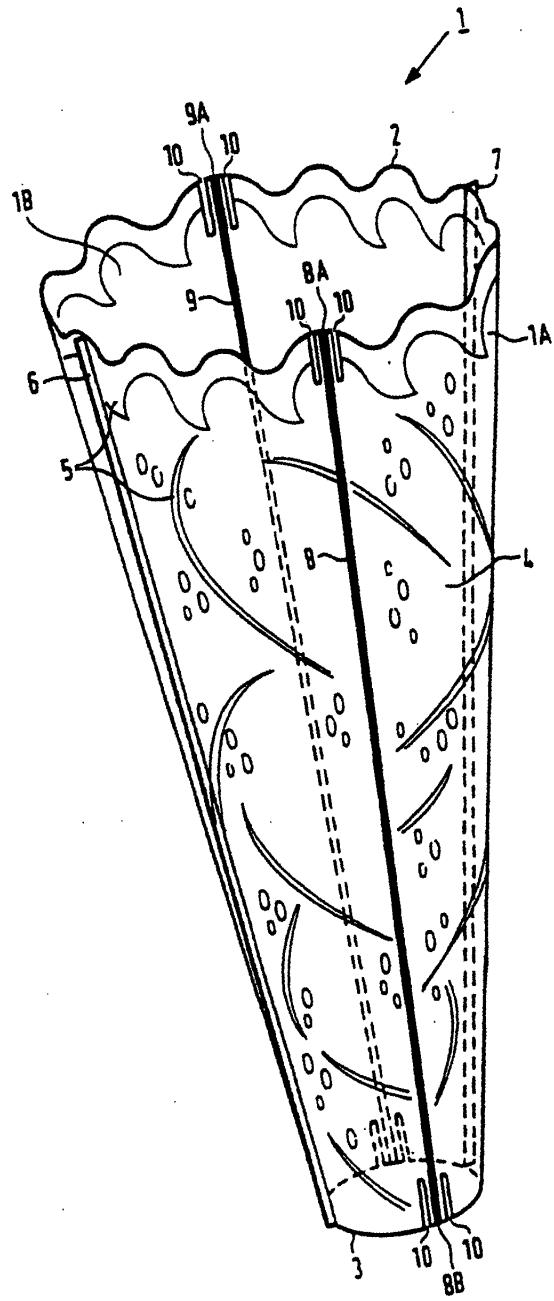


FIG.1

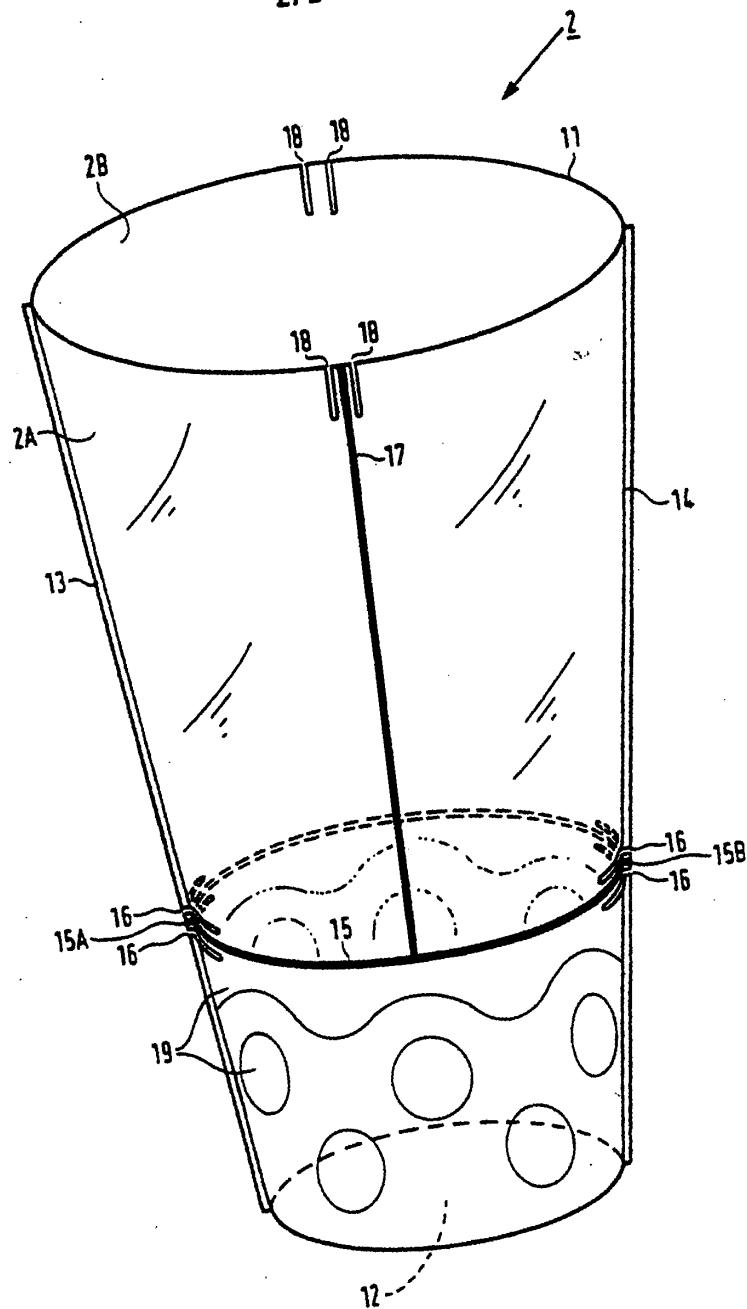


FIG. 2

# INTERNATIONAL SEARCH REPORT

Inte onal Application No  
PCT/NL 96/00380

**A. CLASSIFICATION OF SUBJECT MATTER**  
IPC 6 B65D85/50 B65D85/52

According to International Patent Classification (IPC) or to both national classification and IPC

**B. FIELDS SEARCHED**

Minimum documentation searched (classification system followed by classification symbols)  
IPC 6 B65D

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	CA 2 145 981 A (HIGHLAND SUPPLY CORPORATION) 1 October 1995 see page 1-40; figures 1-32 ---	1-4
X	AU 42319 78 A (DUNDAS NURSERY SUPPLY PTY. LTD.) 21 June 1979 see page 3, line 4-18; figures 1,2 ---	1,2,4
A	DE 31 07 143 A (B&M LIZENZGESELLSCHAFT MBH.) 9 September 1982 see page 13; figure 1 ---	7,9
A	DE 36 16 034 A (THIMM-DORNER) 19 November 1987 see column 4, line 21 - column 5, line 1; figure 3 -----	2
A		5,8

Further documents are listed in the continuation of box C.

Patent family members are listed in annex.

\* Special categories of cited documents :

- "A" document defining the general state of the art which is not considered to be of particular relevance
- "E" earlier document but published on or after the international filing date
- "L" document which may throw doubt on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- "O" document referring to an oral disclosure, use, exhibition or other means
- "P" document published prior to the international filing date but later than the priority date claimed

- "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- "&" document member of the same patent family

Date of the actual completion of the international search

7 February 1997

Date of mailing of the international search report

12.02.97

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentam 2  
NL - 2230 HV Rijswijk  
Tel. (+ 31-70) 340-2040, Tx. 31 651 epc nl.  
FAX: (+ 31-70) 340-3016

Authorized officer

Vollerling, J

**INTERNATIONAL SEARCH REPORT**

Information on patent family members

International Application No  
PCT/NL 96/00380

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
CA-A-2145981	01-10-95	US-A- 5572851 BR-A- 9501406 EP-A- 0675055 US-A- 5493809 US-A- 5572849 US-A- 5575133 US-A- 5581938 US-A- 5595022 US-A- 5592776 US-A- 5595024 US-A- 5595023	12-11-96 02-01-96 04-10-95 27-02-96 12-11-96 19-11-96 18-12-96 21-01-97 14-01-97 21-01-97 21-01-97
AU-A-4231978	21-06-79	NONE	
DE-A-3107143	09-09-82	NONE	
DE-A-3616034	19-11-87	NONE	